

APPENDIX O-1.

Dependent Variable-Covariate Associations for the Immunology Assessment

This appendix contains results of tests of association between each dependent variable and candidate covariates for the adjusted analysis of each dependent variable. Pearson's chi-square test (continuity-adjusted for 2×2 tables) is used for the significance testing of the association between each discrete dependent variable and the candidate covariate. When a candidate covariate is continuous in nature (for example, age), the covariate is discretized prior to the analysis of the discrete dependent variable. Pearson's correlation coefficient is used for significance testing of the associations between each continuous dependent variable and a continuous candidate covariate. When a candidate covariate is discrete in nature, means (transformed back to the original scale, if necessary) are presented and an analysis of variance is used to investigate the difference between the means.

Table O-1-1.
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Age			Race		
		Born ≥1942 (n=909)	Born <1942 (n=1,230)	p-Value	Black (n=128)	Non-Black (n=2,011)	p-Value
Composite Skin Test Diagnosis	Abnormal	2.3%	4.4%	0.014	0.0%	3.7%	0.048
CD3 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =-0.069		0.045	(n=48) \bar{x} =1,547.9	(n=801) \bar{x} =1,471.3	0.387
CD4 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =-0.106		0.002	(n=48) \bar{x} =1,005.3	(n=801) \bar{x} =947.8	0.327
CD5 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =-0.091		0.008	(n=48) \bar{x} =1,588.5	(n=801) \bar{x} =1,516.9	0.432
CD8 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =0.019		0.586	(n=48) \bar{x} =672.0	(n=801) \bar{x} =628.6	0.339
CD14 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =0.067		0.050	(n=48) \bar{x} =456.6	(n=801) \bar{x} =523.6	0.005
CD16+56 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =0.088		0.010	(n=48) \bar{x} =257.2	(n=801) \bar{x} =262.8	0.786
CD20 Cells (cells/mm ³) ^b		(n=849) <i>r</i> =-0.227		<0.001	(n=48) \bar{x} =260.8	(n=801) \bar{x} =221.0	0.047
CD25 Cells (cells/mm ³) ^a		(n=849) <i>r</i> =-0.109		0.002	(n=48) \bar{x} =281.7	(n=801) \bar{x} =251.0	0.140
CD4-CD8 Ratio ^a		(n=849) <i>r</i> =-0.121		<0.001	(n=48) \bar{x} =1.50	(n=801) \bar{x} =1.51	0.865
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a		(n=849) <i>r</i> =-0.097		0.005	(n=48) \bar{x} =226.5	(n=801) \bar{x} =197.6	0.096
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero	(n=809) <i>r</i> =-0.222		<0.001	(n=47) \bar{x} =64.3	(n=762) \bar{x} =51.6	0.059
(discrete)		(n=361) 3.3%	(n=488) 5.7%		(n=48) 2.1%	(n=801) 4.9%	0.593
	Zero			0.140			
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero	(n=759) <i>r</i> =0.027		0.464	(n=42) \bar{x} =31.9	(n=717) \bar{x} =28.9	0.355
(discrete)	Zero	(n=361) 13.3%	(n=488) 8.6%	0.037	(n=48) 12.5%	(n=801) 10.5%	0.842

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (*r*) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Occupation			p-Value
		Officer	Enlisted Flyer	Enlisted Groundcrew	
Composite Skin Test Diagnosis	Abnormal	(n=829) 4.0%	(n=149) 3.4%	(n=960) 3.1%	0.616
CD3 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=1,410.9$	(n=149) $\bar{x}=1,511.4$	(n=370) $\bar{x}=1,520.9$	0.030
CD4 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=918.0$	(n=149) $\bar{x}=963.9$	(n=370) $\bar{x}=976.0$	0.122
CD5 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=1,456.0$	(n=149) $\bar{x}=1,553.7$	(n=370) $\bar{x}=1,567.5$	0.037
CD8 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=604.5$	(n=149) $\bar{x}=656.1$	(n=370) $\bar{x}=645.3$	0.099
CD14 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=506.2$	(n=149) $\bar{x}=530.3$	(n=370) $\bar{x}=527.3$	0.175
CD16+56 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=261.6$	(n=149) $\bar{x}=261.0$	(n=370) $\bar{x}=263.9$	0.967
CD20 Cells (cells/mm ³) ^b		(n=330) $\bar{x}=197.5$	(n=149) $\bar{x}=232.7$	(n=370) $\bar{x}=241.9$	<0.001
CD25 Cells (cells/mm ³) ^a		(n=330) $\bar{x}=241.5$	(n=149) $\bar{x}=246.7$	(n=370) $\bar{x}=265.6$	0.047
CD4-CD8 Ratio ^a		(n=330) $\bar{x}=1.52$	(n=149) $\bar{x}=1.47$	(n=370) $\bar{x}=1.51$	0.714
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a		(n=330) $\bar{x}=189.4$	(n=149) $\bar{x}=194.2$	(n=370) $\bar{x}=210.4$	0.035
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero	(n=309) $\bar{x}=46.5$	(n=143) $\bar{x}=52.0$	(n=357) $\bar{x}=57.9$	0.001
(discrete)	Zero	(n=330) 6.4%	(n=149) 4.0%	(n=370) 3.5%	0.188
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero	(n=295) $\bar{x}=28.6$	(n=139) $\bar{x}=28.7$	(n=325) $\bar{x}=29.7$	0.775
(discrete)	Zero	(n=330) 10.6%	(n=149) 6.7%	(n=370) 12.2%	0.189

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day)				p-Value
		0-Never	0-Former	>0-20	>20	
Composite Skin Test Diagnosis	Abnormal	(n=574) 3.0%	(n=1,025) 3.2%	(n=334) 4.5%	(n=204) 4.9%	0.410
CD3 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =0.289		<0.001
CD4 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =0.309		<0.001
CD5 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =0.277		<0.001
CD8 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =0.171		<0.001
CD14 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =0.347		<0.001
CD16+56 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =-0.103		0.003
CD20 Cells (cells/mm ³) ^b				(n=848) <i>r</i> =0.196		<0.001
CD25 Cells (cells/mm ³) ^a				(n=848) <i>r</i> =0.355		<0.001
CD4-CD8 Ratio ^a				(n=848) <i>r</i> =0.105		0.002
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a				(n=848) <i>r</i> =0.354		<0.001
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero			(n=808) <i>r</i> =0.001		0.968
(discrete)		(n=233) 6.0%	(n=407) 3.2%	(n=137) 5.8%	(n=71) 7.0%	0.240
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero			(n=758) <i>r</i> =0.191		<0.001
(discrete)	Zero	(n=233) 12.5%	(n=407) 10.1%	(n=137) 10.2%	(n=71) 8.5%	0.724

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (*r*) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History (pack-years)				p-Value
		0 (n=574)	>0-10 (n=663)	>10 (n=899)		
Composite Skin Test Diagnosis	Abnormal	3.0%	3.5%	3.9%		0.014
CD3 Cells (cells/mm ³) ^a			(n=848) r=0.127			<0.001
CD4 Cells (cells/mm ³) ^a			(n=848) r=0.148			<0.001
CD5 Cells (cells/mm ³) ^a			(n=848) r=0.111			0.001
CD8 Cells (cells/mm ³) ^a			(n=848) r=0.069			0.044
CD14 Cells (cells/mm ³) ^a			(n=848) r=0.181			<0.001
CD16+56 Cells (cells/mm ³) ^a			(n=848) r=-0.023			0.500
CD20 Cells (cells/mm ³) ^b			(n=848) r=0.052			0.128
CD25 Cells (cells/mm ³) ^a			(n=848) r=0.199			<0.001
CD4-CD8 Ratio ^a			(n=848) r=0.064			0.063
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a			(n=848) r=0.208			<0.001
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero		(n=808) r=-0.091			0.009
	(discrete)	(n=233) 6.0%	(n=255) 4.7%	(n=360) 3.9%		0.493
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero		(n=758) r=0.014			0.696
	(discrete)	(n=233) 12.5%	(n=255) 10.2%	(n=360) 9.7%		0.556

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Alcohol Use (drinks/day)			p-Value
		0-1	>1-4	>4	
Composite Skin Test Diagnosis	Abnormal	(n=1,668) 3.4%	(n=389) 3.9%	(n=55) 5.5%	0.679
CD3 Cells (cells/mm ³) ^a			(n=841) r=0.003		0.931
CD4 Cells (cells/mm ³) ^a			(n=841) r=0.031		0.369
CD5 Cells (cells/mm ³) ^a			(n=841) r=-0.007		0.845
CD8 Cells (cells/mm ³) ^a			(n=841) r=-0.005		0.887
CD14 Cells (cells/mm ³) ^a			(n=841) r=0.048		0.161
CD16+56 Cells (cells/mm ³) ^a			(n=841) r=0.017		0.616
CD20 Cells (cells/mm ³) ^b			(n=841) r=-0.067		0.051
CD25 Cells (cells/mm ³) ^a			(n=841) r=0.073		0.034
CD4-CD8 Ratio ^a			(n=841) r=0.035		0.309
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a			(n=841) r=0.073		0.035
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero		(n=801) r=-0.125		<0.001
(discrete)	Zero	(n=661) 4.1%	(n=161) 6.2%	(n=19) 15.8%	0.038
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero		(n=753) r=-0.003		0.943
(discrete)	Zero	(n=661) 11.0%	(n=161) 8.1%	(n=19) 10.5%	0.544

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Alcohol History (drink-years)				p-Value
		0	>0-40	>40		
Composite Skin Test Diagnosis	Abnormal	(n=125) 1.6%	(n=1,426) 3.3%	(n=548) 4.7%		0.141
CD3 Cells (cells/mm ³) ^a			(n=836) r=0.027			0.428
CD4 Cells (cells/mm ³) ^a			(n=836) r=0.046			0.185
CD5 Cells (cells/mm ³) ^a			(n=836) r=0.015			0.674
CD8 Cells (cells/mm ³) ^a			(n=836) r=-0.007			0.832
CD14 Cells (cells/mm ³) ^a			(n=836) r=0.111			0.001
CD16+56 Cells (cells/mm ³) ^a			(n=836) r=-0.034			0.327
CD20 Cells (cells/mm ³) ^b			(n=836) r=-0.056			0.105
CD25 Cells (cells/mm ³) ^a			(n=836) r=0.057			0.101
CD4-CD8 Ratio ^a			(n=836) r=0.052			0.133
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a			(n=836) r=0.066			0.057
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero		(n=797) r=-0.093			0.009
(discrete)	Zero	(n=52) 5.8%	(n=576) 3.8%	(n=208) 6.7%		0.216
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero		(n=748) r=0.039			0.289
(discrete)	Zero	(n=52) 17.3%	(n=576) 9.7%	(n=208) 11.1%		0.223

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X + 1) scale; correlations based on natural logarithm (X + 1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Physical Activity Index			p-Value
		Sedentary	Moderate	Active	
Composite Skin Test Diagnosis	Abnormal	(n=1,213) 3.9%	(n=395) 2.5%	(n=529) 3.4%	0.447
CD3 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=1,508.0$	(n=165) $\bar{x}=1,433.0$	(n=204) $\bar{x}=1,437.1$	0.195
CD4 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=974.0$	(n=165) $\bar{x}=925.5$	(n=204) $\bar{x}=920.9$	0.156
CD5 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=1,558.7$	(n=165) $\bar{x}=1,473.9$	(n=204) $\bar{x}=1,474.0$	0.125
CD8 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=637.0$	(n=165) $\bar{x}=622.8$	(n=204) $\bar{x}=623.5$	0.798
CD14 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=527.1$	(n=165) $\bar{x}=533.4$	(n=204) $\bar{x}=492.9$	0.025
CD16+56 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=261.3$	(n=165) $\bar{x}=260.3$	(n=204) $\bar{x}=268.2$	0.821
CD20 Cells (cells/mm ³) ^b		(n=479) $\bar{x}=230.1$	(n=165) $\bar{x}=214.6$	(n=204) $\bar{x}=210.3$	0.110
CD25 Cells (cells/mm ³) ^a		(n=479) $\bar{x}=258.1$	(n=165) $\bar{x}=253.7$	(n=204) $\bar{x}=239.7$	0.243
CD4-CD8 Ratio ^a		(n=479) $\bar{x}=1.53$	(n=165) $\bar{x}=1.49$	(n=204) $\bar{x}=1.48$	0.551
Double Labelled Cells: CD3 with CD25 (cells/mm ³) ^a		(n=479) $\bar{x}=202.7$	(n=165) $\bar{x}=202.7$	(n=204) $\bar{x}=188.7$	0.270
Double Labelled Cells: CD5 with CD20 (continuous-cells/mm ³) ^a	Nonzero	(n=459) $\bar{x}=54.1$	(n=153) $\bar{x}=51.4$	(n=196) $\bar{x}=48.6$	0.275
(discrete)	Zero	(n=479) 4.2%	(n=165) 7.3%	(n=204) 3.9%	0.223
Double Labelled Cells: CD4 with CD8 (continuous-cells/mm ³) ^a	Nonzero	(n=426) $\bar{x}=29.1$	(n=149) $\bar{x}=30.5$	(n=183) $\bar{x}=27.9$	0.481
(discrete)	Zero	(n=479) 11.1%	(n=165) 9.7%	(n=204) 10.3%	0.873

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Age			Race		
		Born ≥1942	Born <1942	p-Value	Black	Non-Black	p-Value
Double Labelled Cells:							
CD3 with CD16+56 (continuous-cells/mm ³) ^a	Nonzero	(n=820) r=0.124		<0.001	(n=47) $\bar{x}=119.8$	(n=773) $\bar{x}=68.7$	<0.001
(discrete)	Zero	(n=361) 4.4%	(n=488) 2.7%	0.226	(n=48) 2.1%	(n=801) 3.5%	0.909
Total Lymphocyte Count (TLC) (cells/mm ³) ^a		(n=849) r=-0.095		0.005	(n=48) $\bar{x}=2,175.4$	(n=801) $\bar{x}=2,052.7$	0.241
IgA (mg/dl) ^a		(n=2,200) r=0.065		0.002	(n=129) $\bar{x}=231.5$	(n=2,071) $\bar{x}=217.0$	0.128
IgG (mg/dl) ^a		(n=2,200) r=-0.011		0.595	(n=129) $\bar{x}=1,268.4$	(n=2,071) $\bar{x}=1,030.7$	<0.001
IgM (mg/dl) ^a		(n=2,200) r=-0.067		0.002	(n=129) $\bar{x}=91.1$	(n=2,071) $\bar{x}=105.8$	0.003
Lupus Panel							
ANA Test	Present	(n=942) 10.7%	(n=1,258) 18.6%	<0.001	(n=129) 17.8%	(n=2,071) 15.1%	0.471
Thyroid Microsomal Antibody	Present	(n=942) 3.4%	(n=1,258) 3.5%	0.992	(n=129) 2.3%	(n=2,071) 3.5%	0.635
MSK Smooth Muscle Antibody	Present	(n=942) 1.9%	(n=1,258) 4.0%	0.008	(n=129) 5.4%	(n=2,071) 3.0%	0.188
MSK Mitochondrial Antibody	Present	(n=942) 0.2%	(n=1,258) 0.2%	0.999	(n=129) 0.0%	(n=2,071) 0.2%	0.999
MSK Parietal Antibody	Present	(n=942) 2.2%	(n=1,258) 2.7%	0.572	(n=129) 2.3%	(n=2,071) 2.5%	0.999
Rheumatoid Factor	Present	(n=942) 13.2%	(n=1,258) 18.2%	0.002	(n=129) 18.6%	(n=2,071) 15.9%	0.489
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=942) 1.2%	(n=1,258) 2.6%	0.024	(n=129) 0.8%	(n=2,071) 2.1%	0.484
Other Antibodies	Present	(n=939) 2.8%	(n=1,254) 4.3%	0.074	(n=129) 0.8%	(n=2,064) 3.8%	0.121
Summary Index	Abnormal	(n=939) 30.4%	(n=1,257) 45.1%	<0.001	(n=129) 45.0%	(n=2,067) 38.4%	0.165

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Occupation			p-Value
		Officer	Enlisted Flyer	Enlisted Groundcrew	
Double Labelled Cells:					
CD3 with CD16+56 (continuous-cells/mm ³) ^a	Nonzero	(n=316) $\bar{x}=73.2$	(n=147) $\bar{x}=71.5$	(n=357) $\bar{x}=68.9$	0.694
		(n=330) 4.2%	(n=149) 1.3%	(n=370) 3.5%	
Total Lymphocyte Count (TLC) (cells/mm ³) ^a	Zero	(n=330) $\bar{x}=1,960.6$	(n=149) $\bar{x}=2,081.9$	(n=370) $\bar{x}=2,142.4$	0.002
IgA (mg/dl) ^a		(n=855) $\bar{x}=213.0$	(n=360) $\bar{x}=214.5$	(n=985) $\bar{x}=223.5$	0.069
IgG (mg/dl) ^a		(n=855) $\bar{x}=1,027.2$	(n=360) $\bar{x}=1,027.4$	(n=985) $\bar{x}=1,063.4$	0.002
IgM (mg/dl) ^a		(n=855) $\bar{x}=103.8$	(n=360) $\bar{x}=105.3$	(n=985) $\bar{x}=105.6$	0.779
Lupus Panel					
ANA Test	Present	(n=855) 17.0%	(n=360) 16.4%	(n=985) 13.3%	0.074
Thyroid Microsomal Antibody		(n=855) 3.7%	(n=360) 3.1%	(n=985) 3.4%	
MSK Smooth Muscle Antibody	Present	(n=855) 4.1%	(n=360) 2.2%	(n=985) 2.5%	0.092
MSK Mitochondrial Antibody	Present	(n=855) 0.4%	(n=360) 0.0%	(n=985) 0.2%	0.491
MSK Parietal Antibody	Present	(n=855) 2.5%	(n=360) 1.9%	(n=985) 2.7%	0.706
Rheumatoid Factor	Present	(n=855) 17.7%	(n=360) 15.6%	(n=985) 14.8%	0.245
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=855) 2.3%	(n=360) 3.3%	(n=985) 1.2%	0.033
Other Antibodies	Present	(n=852) 4.0%	(n=359) 4.7%	(n=982) 3.0%	0.242
Summary Index		(n=855) 42.6%	(n=359) 38.7%	(n=982) 35.5%	

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Cigarette Smoking (cigarettes/day)				p-Value
		0-Never	0-Former	>0-20	>20	
Double Labelled Cells:						
CD3 with CD16+56 (continuous-cells/mm ³) ^a	Nonzero			(n=819) r=0.046		0.188
	Zero	(n=233) 4.7%	(n=407) 2.7%	(n=137) 2.9%	(n=71) 4.2%	0.558
Total Lymphocyte Count (TLC) (cells/mm ³) ^a				(n=848) r=0.286		<0.001
IgA (mg/dl) ^a				(n=2,198) r=-0.015		0.475
IgG (mg/dl) ^a				(n=2,198) r=-0.144		<0.001
IgM (mg/dl) ^a				(n=2,198) r=0.009		0.675
Lupus Panel						
ANA Test	Present	(n=602) 17.6%	(n=1,041) 13.9%	(n=345) 14.2%	(n=210) 15.7%	0.228
Thyroid Microsomal Antibody		(n=602) 3.2%	(n=1,041) 3.9%	(n=345) 2.3%	(n=210) 3.8%	0.512
MSK Smooth Muscle Antibody	Present	(n=602) 3.2%	(n=1,041) 3.2%	(n=345) 2.6%	(n=210) 2.9%	0.955
MSK Mitochondrial Antibody		(n=602) 0.3%	(n=1,041) 0.1%	(n=345) 0.6%	(n=210) 0.0%	0.328
MSK Parietal Antibody	Present	(n=602) 2.0%	(n=1,041) 2.8%	(n=345) 2.3%	(n=210) 2.9%	0.768
Rheumatoid Factor		(n=602) 14.8%	(n=1,041) 16.1%	(n=345) 16.5%	(n=210) 18.6%	0.622
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=602) 1.2%	(n=1,041) 1.8%	(n=345) 4.3%	(n=210) 1.4%	0.006
Other Antibodies		(n=599) 3.0%	(n=1,038) 4.2%	(n=344) 3.5%	(n=210) 2.9%	0.545
Summary Index	Abnormal	(n=601) 38.9%	(n=1,039) 38.6%	(n=344) 37.8%	(n=210) 40.5%	0.937

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Cigarette Smoking History			p-Value
		0 Pack-years	>0-10 Pack-years	>10 Pack-years	
Double Labelled Cells:					
CD3 with CD16+56 (continuous-cells/mm ³) ^a	Nonzero		(n=819) r=0.015		0.669
	Zero	(n=233) 4.7%	(n=255) 4.3%	(n=360) 1.9%	0.123
Total Lymphocyte Count (TLC) (cells/mm ³) ^a			(n=848) r=0.127		<0.001
IgA (mg/dl) ^a			(n=2,197) r=0.031		0.143
IgG (mg/dl) ^a			(n=2,197) r=-0.108		<0.001
IgM (mg/dl) ^a			(n=2,197) r=0.013		0.551
Lupus Panel					
ANA Test	Present	(n=602) 17.6%	(n=676) 13.3%	(n=919) 14.9%	0.098
Thyroid Microsomal Antibody		(n=602) 3.2%	(n=676) 3.7%	(n=919) 3.5%	0.868
MSK Smooth Muscle Antibody	Present	(n=602) 3.2%	(n=676) 2.7%	(n=919) 3.3%	0.775
MSK Mitochondrial Antibody		(n=602) 0.3%	(n=676) 0.1%	(n=919) 0.2%	0.785
MSK Parietal Antibody	Present	(n=602) 2.0%	(n=676) 2.5%	(n=919) 2.8%	0.594
Rheumatoid Factor		(n=602) 14.8%	(n=676) 16.6%	(n=919) 16.5%	0.603
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=602) 1.2%	(n=676) 1.3%	(n=919) 3.0%	0.012
Other Antibodies		(n=599) 3.0%	(n=673) 3.6%	(n=918) 4.1%	0.510
Summary Index	Abnormal	(n=601) 38.9%	(n=673) 36.0%	(n=919) 40.7%	0.158

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Current Alcohol Use (drinks/day)			p-Value
		0-1	>1-4	>4	
Double Labelled Cells:					
CD3 with CD16+56 (continuous-cells/mm ³) ^a (discrete)	Nonzero		(n=813) r=-0.050		0.155
	Zero	(n=661) 3.0%	(n=161) 4.4%	(n=19) 5.3%	0.628
Total Lymphocyte Count (TLC) (cells/mm ³) ^a			(n=841) r=0.004		0.911
IgA (mg/dl) ^a			(n=2,172) r=0.037		0.082
IgG (mg/dl) ^a			(n=2,172) r=-0.052		0.016
IgM (mg/dl) ^a			(n=2,172) r=0.048		0.026
Lupus Panel					
ANA Test	Present	(n=1,717) 15.2%	(n=397) 14.9%	(n=58) 13.8%	0.947
Thyroid Microsomal Antibody	Present	(n=1,717) 3.7%	(n=397) 2.3%	(n=58) 3.4%	0.356
MSK Smooth Muscle Antibody	Present	(n=1,717) 3.1%	(n=397) 3.5%	(n=58) 0.0%	0.349
MSK Mitochondrial Antibody	Present	(n=1,717) 0.2%	(n=397) 0.5%	(n=58) 0.0%	0.437
MSK Parietal Antibody	Present	(n=1,717) 2.9%	(n=397) 1.0%	(n=58) 1.7%	0.086
Rheumatoid Factor	Present	(n=1,717) 15.6%	(n=397) 17.1%	(n=58) 20.7%	0.468
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=1,717) 1.8%	(n=397) 3.0%	(n=58) 1.7%	0.296
Other Antibodies	Present	(n=1,712) 3.8%	(n=395) 3.0%	(n=58) 5.2%	0.643
Summary Index	Abnormal	(n=1,715) 38.8%	(n=395) 37.7%	(n=58) 43.1%	0.727

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Lifetime Alcohol History (drink-years)			p-Value
		0	>0-40	>40	
Double Labelled Cells:					
CD3 with CD16+56 (continuous-cells/mm ³) ^a	Nonzero		(n=808) r=-0.008		0.814
	Zero	(n=52) 1.9%	(n=576) 3.3%	(n=208) 3.9%	0.783
Total Lymphocyte Count (TLC) (cells/mm ³) ^a					
IgA (mg/dl) ^a					
IgG (mg/dl) ^a					
IgM (mg/dl) ^a					
Lupus Panel					
ANA Test	Present	(n=131) 15.3%	(n=1,467) 15.6%	(n=560) 13.8%	0.578
Thyroid Microsomal Antibody	Present	(n=131) 3.8%	(n=1,467) 3.8%	(n=560) 2.3%	0.246
MSK Smooth Muscle Antibody	Present	(n=131) 4.6%	(n=1,467) 2.9%	(n=560) 3.2%	0.572
MSK Mitochondrial Antibody	Present	(n=131) 0.8%	(n=1,467) 0.2%	(n=560) 0.2%	0.424
MSK Parietal Antibody	Present	(n=131) 2.3%	(n=1,467) 2.7%	(n=560) 2.1%	0.743
Rheumatoid Factor	Present	(n=131) 19.1%	(n=1,467) 15.2%	(n=560) 17.7%	0.250
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=131) 2.3%	(n=1,467) 1.7%	(n=560) 2.7%	0.362
Other Antibodies	Present	(n=131) 3.8%	(n=1,461) 3.6%	(n=559) 4.1%	0.839
Summary Index	Abnormal	(n=131) 43.5%	(n=1,463) 38.3%	(n=560) 38.8%	0.509

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.

Table O-1-1. (Continued)
Dependent Variable-Covariate Associations for the Immunology Assessment

Dependent Variable	Level	Physical Activity Index			p-Value
		Sedentary	Moderate	Active	
Double Labelled Cells:					
CD3 with (CD16+56) (continuous-cells/mm ³) ^a	Nonzero (discrete)	(n=464) $\bar{x}=73.7$	(n=156) $\bar{x}=68.7$	(n=199) $\bar{x}=66.7$	0.395
		(n=479) 3.1%	(n=165) 5.5%	(n=204) 2.5%	
Total Lymphocyte Count (TLC) (cells/mm ³) ^a		(n=479) $\bar{x}=2,088.4$	(n=165) $\bar{x}=2,022.6$	(n=204) $\bar{x}=2,025.6$	0.402
IgA (mg/dl) ^a		(n=1,250) $\bar{x}=218.0$	(n=402) $\bar{x}=220.7$	(n=546) $\bar{x}=215.2$	0.707
IgG (mg/dl) ^a		(n=1,250) $\bar{x}=1,041.3$	(n=402) $\bar{x}=1,049.0$	(n=546) $\bar{x}=1,043.0$	0.856
IgM (mg/dl) ^a		(n=1,250) $\bar{x}=103.9$	(n=402) $\bar{x}=104.7$	(n=546) $\bar{x}=106.9$	0.606
Lupus Panel					
ANA Test	Present	(n=1,250) 15.5%	(n=402) 13.9%	(n=546) 15.2%	0.741
Thyroid Microsomal Antibody	Present	(n=1,250) 4.2%	(n=402) 2.5%	(n=546) 2.4%	0.070
MSK Smooth Muscle Antibody	Present	(n=1,250) 3.0%	(n=402) 3.0%	(n=546) 3.3%	0.927
MSK Mitochondrial Antibody	Present	(n=1,250) 0.4%	(n=402) 0.0%	(n=546) 0.0%	0.150
MSK Parietal Antibody	Present	(n=1,250) 2.6%	(n=402) 1.5%	(n=546) 3.1%	0.282
Rheumatoid Factor	Present	(n=1,250) 15.9%	(n=402) 17.4%	(n=546) 15.4%	0.688
B Cell Clones Detected by Serum Protein Electrophoresis	Present	(n=1,250) 2.1%	(n=402) 1.7%	(n=546) 2.0%	0.915
Other Antibodies	Present	(n=1,247) 4.1%	(n=399) 4.5%	(n=545) 2.0%	0.059
Summary Index	Abnormal	(n=1,248) 40.0%	(n=400) 39.0%	(n=546) 35.7%	0.231

^a Means transformed from natural logarithm scale; correlations based on natural logarithm versus covariate.

^b Means transformed from natural logarithm (X+1) scale; correlations based on natural logarithm (X+1) versus covariate.

Note: Correlations (r) are based on total sample and are not category specific.